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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/782,169 | 02/14/2001 | Shoji Hara | 010164 | 2107 |

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EXAMINER

TALBOT, BRIAN K

ART UNIT PAPER NUMBER

1762

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 09/782,169 | Applicant(s) HARA ET AL. | |
| | Examiner Brian K. Talbot | Art Unit 1762 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13, 17 and 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 17 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/20/05 has been entered.
2. The amendment filed 3/2/05 has been considered and entered. Claims 14-16 have been canceled in amendment filed 12/30/02. Claims 1-13,17 and 18 remain in the application.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

4. Claims 1-9,13,17 and 18 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by JP 62-60640.

JP 62-60640 teaches sputtering or vapor depositing a metal atop a thermoplastic polyimide sheet and heating to form the laminated film. The metal can be copper. JP 62-60640 teaches bonding a copper foil to a polyimide substrate followed by heat treating to form the laminate.

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5. Claims 1-9,13,17 and 18 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Chen et al. (5,156,710) or Shiotani et al. (5,741,598).

Chen et al. (5,156,710) or Shiotani et al. (5,741,598) teach applying a metal layer to a polyimide layer and heating to form a conductor layer atop the polyimide layer. The polyimide layer is formed by imidizing a polyamic acid. The metal layer can be applied by a variety of ways but laminating a metal foil is most preferred.

Shiotani et al. (5,741,598) further teaches that it is conventional in the art to form the metal layer atop the polyimide film by plating (col. 1, lines 27-30) The laminate is formed by applying the metal layer to the imide layer and heating by pressure.

Claim Rejections - 35 USC § 103

6. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (5,156,710), Shiotani et al. (5,741,598) in combination with JP 62-60640 or JP 11-240,106.

Chen et al. (5,156,710) or Shiotani et al. (5,741,598) fail to teach a dry plating method for coating the metal layer on the polyimide layer.

JP 62-60640 teaches sputtering or vapor depositing a metal atop a thermoplastic polyimide sheet and heating to form the laminated film. JP 62-60640 forms the laminates in a continuously mode of extrusion forming. Not laminated with metal, the resin may be plated with metal through chemical plating, electroplating, sputtering or vapor deposition to produce the laminates of the invention (pg. 7 of translation filed 1/09/04)

JP 11-240,106 teaches applying a metal or metal oxide layer on a polyimide layer by vapor deposition or sputtering (abstract).

Therefore, it would have been obvious for one skilled in the art at the time the invention was made to have modified Chen et al. (5,156,710) or Shiotani et al. (5,741,598) process by forming the conductor layer by dry plating as evidenced by JP 62-60640 or JP 11-240,106 with the expectation of achieving similar results.

Claim Rejections - 35 USC § 103

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 62-60640 (alone) or Chen et al. (5,156,710) or Shiotani et al. (5,741,598) in combination with JP 62-60640 or JP 11-240,106 further in combination Ameen et al. (5,681,443).

JP 62-60640 (alone) or Chen et al. (5,156,710) or Shiotani et al. (5,741,598) in combination with JP 62-60640 or JP 11-240,106 fail to teach wet coating a metal atop the dry coated metal.

Ameen et al. (5,681,443) teaches forming printed circuits whereby a metal flash layer is applied to a polymer substrate by vapor deposition or sputtering and subsequently a metal layer is applied to the flash metal by electrodeposition.

Therefore it would have been within the skill of one practicing in the art to have modified JP 62-60640 or JP 11-240,106 by forming a second metal coating by wet plating as evidenced by Ameen et al. (5,681,443) with the expectation of achieving success, i.e. a thicker coating.

Response to Arguments

8. Applicant's arguments filed 10/20/05 have been fully considered but they are not persuasive.

Applicant argued that the prior art teaches applying heat to a laminate comprising the conductor layer and a polyimide and not forming the laminate simultaneously with the heating step, i.e. a post heat treating step on a laminate.

The Examiner agrees in part.

The claims can be broadly read as being performed simultaneously and would be met by the references "heated pressing". Furthermore, the reference teaches applying a metal foil/layer to the polyimide substrate (which meets the claim forming step of forming a laminate) and then applied pressure and heat to form the laminate (which meets the claimed heating step) (see examples in 5,741,598). The Examiner contends that a laminate is formed by the prior art since in the prior art as well as in the instant invention, the formation of the claimed laminate is produced by applying a coating layer to a polyimide substrate. Hence, since the processes are similar, the Examiner can draw no other conclusion other than the fact that a laminate is formed.

Applicant's amendment with regards to claim 1 does not limit the claims as argued. The claims still read upon the art of record as detailed above.

With regards to JP 62-60640 teaches heat pressing metal foil as well as applying to metal layer by plating (example 9) and heating as shown in the table. JP 62-60640 teaches the metal layer can be applied to the polyimide substrate by a variety of coating methods including


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sputtering and vapor deposition (pg. 7 of translation). Hence, a subsequent heating step would be suggestive after the coating of the metal by any of the methods described.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian K. Talbot whose telephone number is (571) 272-1428. The examiner can normally be reached on Monday-Friday 6AM-3PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

 1/6/06
Brian K Talbot
Primary Examiner
Art Unit 1762

BKT